

(12) **UK Patent Application** (19) **GB** (11) **2 351 903** (13) **A**

(43) Date of A Publication 17.01.2001

(21) Application No **9916579.7**

(22) Date of Filing **15.07.1999**

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(51) INT CL⁷

A47G 27/02 27/04

(52) UK CL (Edition S)

A4S S1A S1B S1G S1M

(56) Documents Cited

GB 2157590 A GB 1573492 A EP 0653179 A
EP 0567608 A AU 004455099 A DE 004336734 A
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(58) Field of Search

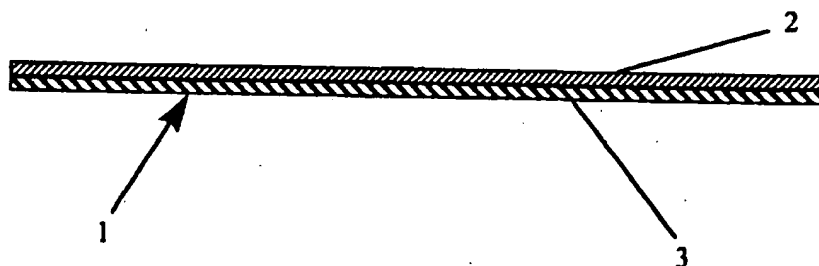
UK CL (Edition R) A4S S1A S1B S1C S1D S1E S1F
S1G S1H S1J S1K S1L S1M S1N S1P S1Q
INT CL⁷ A47G 27/00 27/02 27/04
Online: WPI, JAPIO & EPODOC

(54) Abstract Title

A resilient covering having a flexible magnetic layer

(57) A resilient covering material 1 comprising a resilient facing layer 2 bonded to a flexible magnetic layer 3. The covering material may be formed as tiles or panels which can be loose laid over ferromagnetic substrates such as the metal access panels for cabling in buildings (fig 2).

Figure 1



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Figure 1

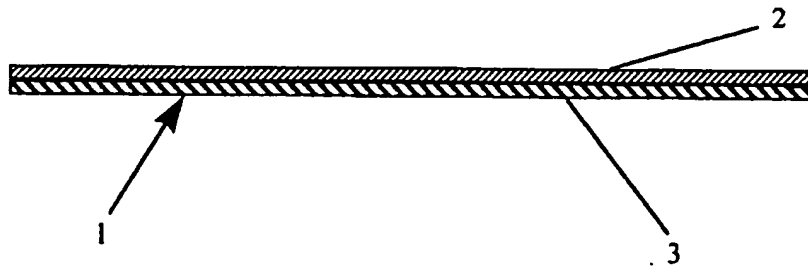
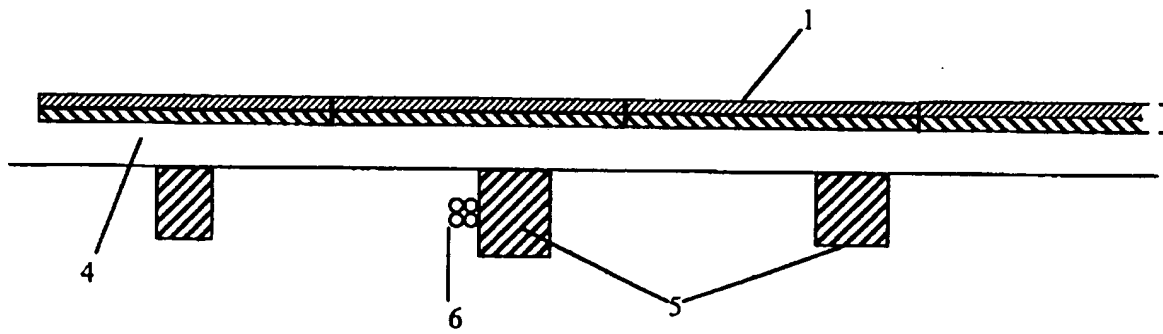


Figure 2



Covering Material

The present invention relates to a covering material for example a floorcovering or wallcovering, which allows access
5 to the underlying structures.

In many buildings, such as new buildings and major refurbishment's of older buildings, particularly office buildings, cabling is postitioned under the floor or behind
10 walls with metallic access panelling laid on top. This arrangement allows easy access to the cabling for modification and repair work. However, the requirement for access currently limits the choice of floorcovering to carpeting and carpet tiles which can be laid without
15 adhesive in these areas. Carpet tiles may sometimes have metallic strips attached to form a magnetic bond with the substrate.

Resilient floorcoverings (for example polymer materials such
20 as polyvinyl chloride or "vinyl", linoleum, rubber, laminates) cannot be used in a similar way as they must be fully bonded to a substrate in order to ensure that they retain dimensional stability. In some cases, resilient floor coverings have been pre-bonded directly onto the
25 metallic access panels themselves at the point of manufacture. This process is however expensive. The panels must be custom made for the particular application. Furthermore, the possibility of repairing or replacement of the floor covering as a result of wear and tear is much
30 reduced.

There is a need for a more flexible method of fitting resilient coverings to surfaces such as metallic access panelling.

According to the present invention, there is provided a resilient covering material comprising a resilient facing layer bonded to a flexible magnetic layer.

- 5 Suitable flexible magnetic layers for use in the covering material are plastics, such as polyvinyl chloride materials, or rubber materials. These are magnetised for example by inclusion of magnetically attracting particulate materials such as ferrites, for example barium ferrite or strontium
10 ferrites, which may be permanently magnetised by the application of a magnetic field.

In addition however, they are sufficiently flexible to be able to bend during the positioning and removal of the
15 covering.

Examples of such materials are available for instance from Anchor Magnets Ltd, of Sheffield, U.K. These materials are suitably from 0.5 to 1.0mm thick.

- 20 Suitably the resilient facing layer of the covering material for use in the covering material comprises a conventional resilient covering material. Examples of floor or wall covering resilient materials include polymeric materials
25 like polyvinyl chloride or other vinyl polymers, laminates, rubbers and other linoleum materials. A particular example of such a material is styrodene butyl rubber (SBR) obtainable from Dalsouple Direct Ltd, Bridgewater, England.

- 30 These materials provide a surface which is easy to clean and maintain. They may also be resilient and hardwearing. Decorative finishes for such materials are well known.

The resilient facing layer is suitably bonded to the
35 flexible magnetic layer by means of an adhesive, such as UP5040 available commercially from Anchor Magnets Ltd,

England, which is applied across the entire surface area. Suitably the adhesive is applied to one or both of the flexible magnetic layer and the resilient facing layer on a carrier such as a paper or webbing carrier, which are then
5 contacted together and the adhesive is allowed to set. Pressure may be applied in order to ensure even bonding, for example using a system of rollers.

Alternatively the layers may be otherwise fused together for
10 example using a vulcanisation process. In this process, the layers will be placed in contact with each other and heated, for example to temperatures in the range of from 70 to 85°C in the presence of sulphur, so as to fix the two layers together.
15 If necessary or desired, the magnetic material may be magnetised or remagnetised after this process.

Thus the invention further provides a method for preparing a covering material as described above, which comprises
20 bonding together a resilient facing layer and a flexible magnetic layer.

If desired, a stabilising scrim, for example a glass fibre scrim, can then be applied either to the lower surface of
25 the resilient facing layer, or the upper surface of the magnetic layer, prior to bonding using conventional procedures. The resultant material has a scrim layer interposed between the resilient facing layer and the magnetic layer. This enhances the dimensional stability of
30 the material which may be particularly useful in certain situations, for example if the material is intended for use in environments where extreme temperatures are prevalent.

The material is suitably prepared in the form of a
35 continuous roll, or sheet which may then be supplied to the end user. In a particular embodiment however, the material

is first cut into units such as tiles or panels of a convenient size or shape, depending upon the end use. Suitably tiles of from 0.05 to 2m square are produced.

- 5 The covering material described above can then be applied to a ferromagnetic floor or wall surface. Suitably, tiles, panels or sheets of the material are loose laid. However, the material will be releasably connected by magnetic attraction.

- 10 Suitably, when the material is a floorcovering, the magnetic attraction between the covering material of the invention and the ferromagnetic substrate is sufficient to create a stable walking surface with no slippage. For wall coverage,
15 the magnetic interaction should be sufficient to ensure that the material remains in place until removed manually.

- If desired, the covering material may be applied only to a mixed floor surface where metallic access panels are
20 provided in a floor or wall which includes wooden or concrete regions. In this case, other conventional floor or wall coverings are applied to the non-ferromagnetic regions. Preferably however, the material is applied across the entire surface area in order to ensure that the surface is
25 uniform.

When there is a requirement to access the under floor area, the tiles, panels or sheets can be lifted up mechanically or manually so as to overcome the magnetic interaction.

- 30 They can furthermore be replaced time and again without loss of performance of the upper resilient facing layer. Additionally, where the material is in the form of tiles, individual tiles may be replaced as necessary as a result of wear and tear, without incurring major refurbishment
35 expense.

Materials of the invention may find a wide range of applications, since panels of magnetised resilient material can be affixed to any metallic surfaces, for example on metal buildings, machinery, cars and lorries, or display boards or hoardings, for decorative or display purposes.

The invention will now be particularly described by way of example with reference to the accompanying diagrammatic drawings in which:

10

Figure 1 shows a section through a tile of covering material in accordance with the invention; and

Figure 2 illustrates diagrammatically, floor tiles of the material of the invention in place upon a floor.

The illustrated floor tile (1) (Figure 1) comprises a lower layer of flexible magnetic polymer (3) as supplied by Anchor Magnets Ltd (UK). An upper resilient facing layer (2) is firmly adhered to the lower layer (3) by means of an adhesive (not shown).

Figure 2 illustrates a situation in which a number of floor tiles (1) as illustrated in Figure 1 have been loose laid on a metallic floor panelling (4) supported on a series of joists (5). A panel of the floor (4) is situated above a set of cables (6) running in the under-floor area. The tiles 1 are held firmly in place as a result of magnetic interaction between the flexible magnetic layer (2) and the floor (4).

In order to gain access to the cables (6), the tiles (1) in the region of the appropriate floor panel can be lifted manually. The panel itself can then be raised to allow access to the cables (6).

After examination or repair, the floor panel and the tiles
(1) can be readily relaid.

CLAIMS

1. A resilient covering material comprising a resilient facing layer bonded to a flexible magnetic layer.
- 5 2. A resilient covering material according to claim 1 wherein the flexible magnetic layer is a plastics or rubber material which have magnetically attracting particulate materials integrated therein.
- 10 3. A resilient covering material according to claim 1 or claim 2 wherein the resilient facing layer comprises a polymeric material, or rubber or a laminate thereof.
- 15 4. A resilient covering material according to any one of the preceding claims wherein the resilient facing layer has a decorative finish.
- 20 5. A resilient covering material according to any one of the preceding claims wherein the resilient facing layer is bonded to the flexible magnetic layer by means of an adhesive.
- 25 6. A resilient covering material according to any one of claims 1 to 5 wherein the resilient facing layer is bonded to the flexible magnetic layer by vulcanisation.
- 30 7. A resilient covering material according to any one of the preceding claims wherein a stabilising scrim is interposed between the resilient facing layer and the flexible magnetic layer.
- 35 8. A resilient covering material according to any one of the preceding claims which is in the form of a tile or panel.

9. A method for preparing a resilient covering material according to any one of claims 1 to 8, which comprises bonding together a resilient facing layer and a flexible magnetic layer.

5

10. A method of covering a substrate, at least part of which comprises a ferromagnetic material, said method comprising applying to said substrate a resilient covering material according to any one of claims 1 to 8.

10

11. A resilient covering material substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB 9916579.7
Claims searched: 1 to 11

Examiner: Jason Clee
Date of search: 6 September 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.R): A4S

Int CI (Ed.7): A47G: 27/00, 27/02 & 27/04

Other: Online: WPI, EPODOC & JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2157590 A	(Menhennet J. A. F.) especially see the abstract and figures	1-3, 5, 6 & 8-10
X	GB 1573492 A	(Mackay, D. R. H.) especially see the figures	1, 2, 4, 6 & 8-10
X	EP 0653179 A	(Duskin Co. Ltd) especially see the elastomer backing sheet (4) blended with magnetic powder	1, 2, 4-6 & 8-10
X	EP 0567608 A	(Piller, H.) especially see the abstract and figures	1, 2, 4-6 & 8-10
X	US 5271200 A	(Permagrain Products Inc.) see whole document	1-5 & 7-10
X	AU 4455099 A	(Whitehurst, D.) especially see the abstract and figures	1-3, 5, 6 & 8-10
X	DE 4336734 A	(Piller, H.) especially see the abstract and figures	1-4 & 8-10

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